

Relationship of Doctor Ratio with Non-Specialistic Referrals Status in Social Security Agency on Health, Pamekasan

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Abstract

Increased access to health services after universal health coverage has not been matched by the fulfillment of the ratio of doctors will disrupt the resilience of national health insurance. The role of doctors in first-level health facilities as health service providers and referral screeners (gate keepers). This gap in the ratio of doctors can lead to high rates of non-specialistic referrals. This study aims to analyze the relationship between the ratio of doctors to Non-Specialistic Referrals (RNS) at Social Security Agency on Health, Pamekasan. The research method used was quantitative with an observational analytic approach using cross sectional and secondary data derived from all Status in Social Security Agency on Health, Pamekasan and Sumenep districts, and analyzed with the chi-square test ($\alpha=0.05$). The results of this study indicate the existence of a doctor's ratio on the status of non-specialistic referrals, namely there is a relationship with a p-value of $0.001 < 0.05$; OR=2.381 CI= 1.099-3.574. The conclusion of this study shows that there is a relationship between the ratio of doctors to the status of non-specialistic referrals. Local governments are expected to develop strategies to fulfill the ratio of doctors, especially in first-level facilities to achieve quality and standardized health services

Keywords: doctor ratio, non-specialistic referrals, Social Security Agency on Health of Pamekasan

Introduction

The Status Social Security Agency on Health Medium-Term Development Plan 2020-2024 states that Social Security Agency on Health can achieve Universal Health Coverage (UHC) in 2024, where 274 million Indonesians will have access to affordable health care (Peraturan Presiden RI Nomor 18 Tahun 2020, 2020). The achievement of UHC Status in Social Security Agency on Health, Pamekasan in all districts in Madura including Bangkalan, Sampang, Pamekasan and Sumenep was achieved in 2022 and 2023. However, the achievement of the UHC program must also be balanced with good readiness and competence at the First Level Health Facility which is the gate keeper in the National Health Insurance (NHI) program. Easier and more affordable access to health for the community has resulted in high public enthusiasm for the implementation of UHC. The urgency is that if this is not matched by the readiness of first-level health facilities, it will have an impact on the quality of services and control of health costs.

First-level health facilities are expected to provide quality and comprehensive services to participants including promotive, preventive, curative and rehabilitative. One of the roles of first-level health facilities in the

NHI era health organization as the spearhead of health services to the community is a referral filter (gate keeper). The problem found by first-level health facilities in carrying out their role is the high number of non-specialistic referrals. It can be seen that diseases that should be treated at the first-level health facility completely but many are still referred to secondary-level services (Ratnasari, 2018). This certainly affects the quality of service at non-specialist referral health facilities and also the sustainability of the NHI program.

The quality of health services at first-level health facilities in the NHI era is related to the availability of resources including human resources, facilities, infrastructure, tools, medicines at first-level health facilities and financing conditions at first-level health facilities. The results of the WHO global conference in 2009 that one of the reforms in the health care approach where the practice of physician services is integrated with first-level health facilities and involves inter-professional collaboration (Who, 2009). The Central and Local Governments have a central role in efforts to fulfill the resources and competence of human resources, both doctors in first-level health facilities, both health centers, clinics and independent practices. Improving the quality of services at first-level health facilities can be achieved through the fulfillment of human resources that meet the standards, especially for doctors.

WHO states that the doctor ratio standart in primary health care (PHC) is 10:10,000 (BPJS Kesehatan, 2024; WHO, 2021). The doctor ratio at PHC in the BPJS Health Pamekasan Branch Office for June 2024, which is still at an average level of 1: 7,103 and this shows that the ratio of doctors is still not ideal when compared to WHO standards. The gap in the doctor's ratio is predicted to get higher as NHI patients increase after UHC. The impact that will be caused by the gap in the ratio of doctors is that the services provided will be less than optimal for NHI participants, such as longer service queues and limited beds and less optimal promotive and preventive efforts at PHC (which should be carried out by health workers including doctors).

Research conducted by Ruslang and Diah Ayu Puspendari (2023) reinforces this statement, that there is an increase in Non-Specialistic Referrals (RNS) to Hospitals (RS) as advanced health services due to the high gap in the ratio of doctors at Puskesmas. This ultimately resulted in an increase in the accumulation of patients in hospitals (Ruslang & Diah Ayu Puspendari, 2023). Telemedicine is one of the strategic efforts that have been implemented to overcome the gap in the ratio of doctors, but with the limited number of doctors in first-level health facilities, telemedicine is still considered not optimal to ensure the continuity of complete and standardized health services.

So based on the description above, it can be seen that the problems that arise, namely easy and affordable access to health, have not been matched by the readiness of advanced health services after UHC and the standardization of health workers, namely doctors, is still not ideal, which has an impact on the high RNS. The formulation of the problem in this article is how the relationship between the ratio of doctors to non-specialistic referrals.

Methods

This study is a quantitative study that uses an observational analytic design with a cross-sectional design. Observational analytic design is a study used to determine how and why a phenomenon occurs, through a statistical analysis such as a correlation analysis / relationship between cause and effect or between risk factors and effects. This research design can also be used to determine how much the cause or risk factor contributes to the effect (Syapitri et al., 2021). This study uses secondary data sources, namely data on the number of doctor ratios and Non-Specialist Referrals (RNS). The object of this research is the entire working area of Social Security Agency on Health, covering Bangkalan, Sampang, Pamekasan and Sumenep District. Research data was analyzed univariately and bivariately. Univariate analysis is in the form of a frequency distribution table, while bivariate analysis is carried out to determine the relationship between two variables, namely the chi square test. The results of this research data analysis are submitted with cross tabulation and SPSS output results.

Results and Discuss

A. Data Analysis: Effect of Physician Ratio on Non-Specialty Referrals

1) Type of Membership per Segment at Status in Social Security Agency on Health, Pamekasan

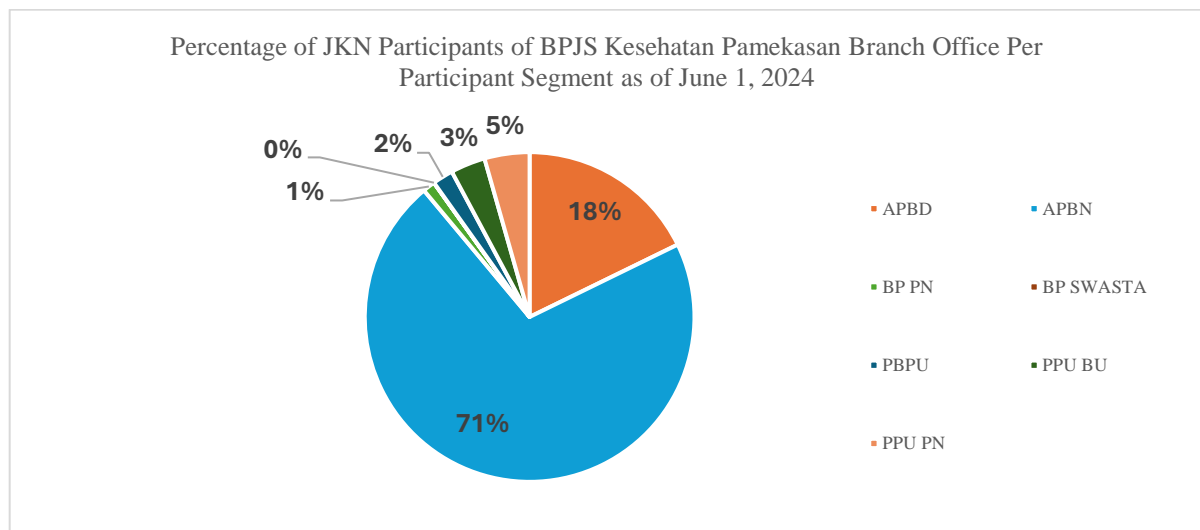


Figure 1. Percentage of NHI Participants in Status in Social Security Agency on Health, Pamekasan per Participant Segment June 1, 2024 (SSBI BPJS Kesehatan, 2024)

Based on the diagram above, it can be seen that most NHI participants in Status in Social Security Agency on Health, Pamekasan come from the APBN participant segment (71%) and the next largest percentage is from the APBD participant segment (18%). This percentage also shows that the commitment of the central and regional governments is very high in ensuring certainty of health protection for their people, and this is also reinforced by the government's commitment to achieving UHC in the four districts included in the Status in Social Security Agency on Health, Pamekasan working area.

2) **Overview of Trends in Health Care Visits and Costs in the Implementation of UHC at BPJS Kesehatan KC Pamekasan**

Month, Year of Bulan Layan	RITL			Nmtkp			RJTL		
	Kasus	Biaya Verifikasi	Unit Cost	Kasus	Biaya Verifikasi	Unit Cost	Kasus	Biaya Verifikasi	Unit Cost
January 2022	6,173	27,708,123,660	4,488,599	27,914	9,519,097,300	341,015	27,914	9,519,097,300	341,015
February 2022	4,509	20,637,026,845	4,576,852	23,322	8,426,278,700	361,302	23,322	8,426,278,700	361,302
March 2022	4,888	22,886,099,552	4,682,099	28,026	10,181,782,300	363,298	28,026	10,181,782,300	363,298
April 2022	5,323	24,823,232,369	4,663,391	24,131	8,114,944,700	336,287	24,131	8,114,944,700	336,287
May 2022	5,945	27,368,529,659	4,603,621	24,520	8,542,243,100	348,379	24,520	8,542,243,100	348,379
June 2022	6,800	31,770,556,432	4,672,141	31,352	10,973,662,600	350,015	31,352	10,973,662,600	350,015
July 2022	6,782	31,809,467,343	4,690,278	30,137	10,478,358,100	347,691	30,137	10,478,358,100	347,691
August 2022	8,095	36,730,045,636	4,537,374	35,198	12,235,896,400	347,630	35,198	12,235,896,400	347,630
September 2022	8,709	39,925,526,681	4,584,399	36,984	12,756,244,100	344,913	36,984	12,756,244,100	344,913
October 2022	9,146	42,429,062,090	4,639,084	37,426	12,610,403,700	336,942	37,426	12,610,403,700	336,942
November 2022	9,559	44,069,577,162	4,610,271	40,498	13,579,278,800	335,307	40,498	13,579,278,800	335,307
December 2022	10,623	49,013,952,592	4,613,946	44,895	15,161,067,600	337,701	44,895	15,161,067,600	337,701
January 2023	10,716	49,871,746,201	4,653,952	47,922	17,264,727,525	360,267	47,922	17,264,727,525	360,267
February 2023	9,928	50,186,151,749	5,055,011	45,448	17,539,543,030	385,926	45,448	17,539,543,030	385,926
March 2023	10,720	54,693,479,527	5,102,004	49,124	19,373,492,480	394,379	49,124	19,373,492,480	394,379
April 2023	9,611	47,287,529,959	4,920,147	35,055	13,279,689,340	378,824	35,055	13,279,689,340	378,824
May 2023	11,920	59,244,572,274	4,970,182	54,316	22,076,420,310	406,444	54,316	22,076,420,310	406,444
June 2023	10,750	54,193,904,920	5,041,293	48,363	20,277,707,685	419,281	48,363	20,277,707,685	419,281
July 2023	11,433	57,275,920,734	5,009,702	56,179	23,707,255,470	421,995	56,179	23,707,255,470	421,995
August 2023	12,041	61,032,401,700	5,068,715	59,255	23,936,775,860	403,962	59,255	23,936,775,860	403,962
September 2023	11,973	61,289,089,763	5,118,942	55,472	23,156,506,180	417,445	55,472	23,156,506,180	417,445
October 2023	12,941	64,871,580,437	5,012,872	61,022	25,449,082,965	417,048	61,022	25,449,082,965	417,048
November 2023	13,203	67,079,866,869	5,080,653	62,568	25,786,995,540	412,144	62,568	25,786,995,540	412,144
December 2023	12,981	63,928,505,221	4,924,775	60,535	25,248,599,110	417,091	60,535	25,248,599,110	417,091
Grand Total	224,769	1,090,125,949,375	4,849,984	1,019,662	389,676,052,895	382,162	1,019,662	389,676,052,895	382,162

Figure 2. Overview of Case Data, Health Services and Unit Cost (UC) Status in Social Security Agency on Health, Pamekasan Year 2022-2023 (SSBI BPJS Kesehatan, 2024)

Based figure 2 above, it can be seen that health service costs/unit costs continue to increase every month. A significant increase was seen since the implementation of UHC in all districts in Madura in January 2023 and continued to increase every month until the end of December 2023. Data on hospital visits, both outpatient and inpatient, also show a significant increase (Self Service Business Intelligence (SSBI) BPJS Kesehatan, 2022). The enthusiasm of the Madurese community is very good regarding the implementation of the UHC program, this can also be seen from the trend of advanced outpatient visits (RJTL) Status in Social Security Agency on Health, Pamekasan Year 2022-2023 per participant segment in Figure 2.

Visit Trends per Participant Segment Office All (advanced outpatient)

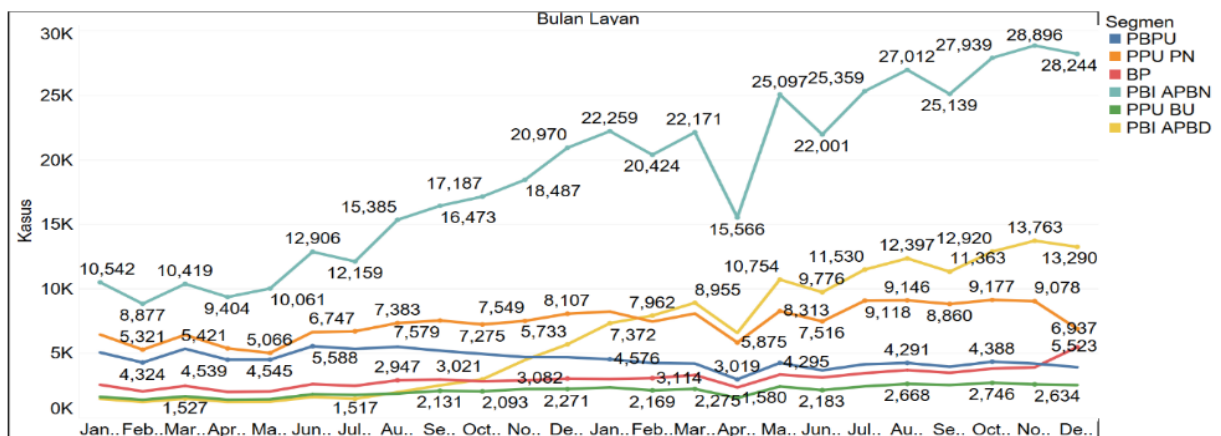


Figure 3. Trend of Advanced Outpatient Visits (RJTL) Status in Social Security Agency on Health, Pamekasan Year 2022-2023 per Participant Segment

Visit Trends per Participant Segment Office All (advanced outpatient)

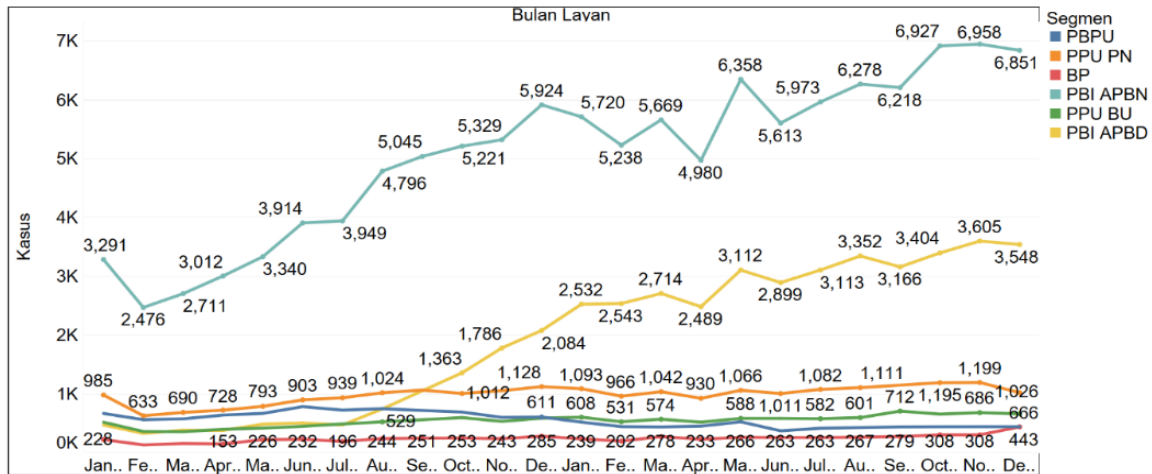


Figure 4. Trend of Advanced Inpatient Visits (RITL) Status in Social Security Agency on Health, Pamekasan Year 2022-2023 per Participant Segment

Based on figure 3 and 4, it can be seen that there has been an increase in community visits to hospitals, both outpatient and inpatient, in the Regional Contribution Assistance Recipient participant segment in January 2023 onwards. The State Contribution Assistance Recipient participant segment accounts for the highest visits, this is in line with the data that the PBIN segment is the segment with the largest number of memberships and dominates in BPJS Kesehatan Pamekasan Branch Office. In the PBID membership segment, there are interesting things that can be of concern, where at the beginning of 2022 visits for this segment are very small, even smaller than visits to other membership segments such as the PPU PN and PBPU segments. However, in October and November 2022, outpatient visits from the PBID segment began to increase significantly, due to the early implementation of UHC in Bangkalan and Sumenep districts. An increase in inpatient visits also occurred in the PBID membership segment in August 2022 and was the initial time of UHC implementation in Sampang District.

In Kendari City, Asma et al (2022) also found that there was a significant effect on health services in the NHI Era where the number of referral cases was higher than before or exceeded the referral standard of 15% (Asma et al., 2022). The implementation of Performance-Based Capitation (PBC) is one of the quality indicators to measure the achievement of first-level health facility performance. This indicator is expected to motivate first-level health facilities (PHC) to carry out promotive and preventive efforts in both indoor and outdoor services as well as compliance with 144 diagnoses that must be handled completely at first-level health facilities (Trisnantoro et al., 2018). The variables of KBK implementation include contact rate, ratio of non-specialistic referrals and ratio of controlled prolanis participants. This assessment will have consequences for PHC, the achievement of the above variables has implications for full capitation payments, and conversely if these indicators are not achieved, the amount of capitation is reduced.

3) Disparity in the Ratio of Doctors in the BPJS Health KC Pamekasan Branch Office

PHC readiness in implementing the UHC program is also an important thing to note and harmonize, including in terms of the adequacy of medical personnel who should be in accordance with existing standards because it is a milestone in providing the best service for every NHI participant.



Table 1. Referral Ratio of Doctors in the Working Area of Social Security Agency on Health, Pamekasan in June 2024

PHC Type	Doctor Ratio
Doctor Individual practice	1 / 1.561
Primary clinic	1 / 920
Health Center	1 / 14.837

Source: *Monthly Report of BPJS Kesehatan Pamekasan Branch Office, 2024*

From table 1, it can be seen that the ratio of doctors on duty at PHC in the BPJS Health Pamekasan Branch Office working area for private clinics has met the WHO recommendation standards. However, the ratio of doctors at Puskesmas and Individual Doctor Independent Practice Places (TPMDP) still does not meet the WHO recommendation standards, especially in the ratio of doctors at public health center which is very far the ratio between doctors and target NHI participants, namely 1 doctor for around 14,837 participants. WHO has set an ideal doctor ratio standard of 10:10,000 or 1:1,000 (WHO, 2021). This gap in the ratio of doctors will increase, in line with the increasing number of NHI participants after the implementation of the UHC program. Research conducted by Wulandari & Laksono (2019) found that there are disparities between urban and rural areas in the utilization of puskesmas by the elderly in the outpatient category in East Java. The development of health facilities in urban areas is considered more rapid than in rural areas in East Java (Wulandari & Laksono, 2019). This condition has contributed to the occurrence of urban-rural disparities in East Java in the utilization of health services, including in the Madura islands of the BPJS Health Pamekasan Branch Office

Based on the National Long-Term Development Plan 2005-2025, health is one of the main focuses to achieve the quality and competitiveness of human resources and Indonesia's Human Development Index. In addition, the government directs national development in the health sector through measures to increase awareness, willingness, and ability to live a healthy life for everyone in order to achieve an increase in health status. Health workers, including doctors, are key players in achieving health development goals as they contribute up to 80% in accelerating health development (Tangcharoensathien et al., 2015). The distribution and placement of health workers in adequate numbers and quality in underdeveloped areas significantly provides equitable health services. In East Java, there are disparities in health service utilization between urban and rural areas (Wulandari et al., 2019; Wulandari & Laksono, 2019).

Table 2. Ratio of PHC Doctors in the Working Area of Social Security Agency on Health, Pamekasan in June 2024

PHC	N	Ratio of doctors at first-level health facilities			
		N Ideal	%	N Not Ideal	%
Doctor Individual practice	77	42	55%	35	45%
Primary clinic	28	16	57%	12	43%
Health center	95	0	0%	95	100%
Total	200	58	29%	142	71%

Source: *Monthly Report of BPJS Kesehatan Pamekasan Branch Office, 2024*

Based on table 2, what is an important point to note is that most (71%) of the ratio of doctors at primary health care facilities in the BPJS Health Pamekasan Branch Office working area is in the non-ideal category, namely 142 PHCs out of a total of 200 PHCs. And a small portion, namely 29% or as many as 58 PHCs alone have an ideal doctor ratio consisting of 42 DPPs, 16 Clinics and none of the Public Health Center have an ideal doctor ratio. Puskesmas, which has the largest number of 95 Puskesmas spread throughout Madura and is the largest PHC compared to other PHCs (DPPs and Clinics) and is a government-owned PHC, is actually an PHC that has the highest percentage of non-ideal PHC doctor ratios reaching 100%.

The ratio of doctors at puskesmas is getting smaller with the UHC program, this is because most participants who enter the PBID and PBIN segments are registered directly through puskesmas health facilities. According to Ramadhani (2020) found that the low quality and quantity of human resources at puskesmas, especially doctors, caused referrals to increase in addition to the absence of standard procedures, lack of facilities and infrastructure, medical indications suffered by patients outside the ability of the puskesmas, incomplete medicines and medical materials and lack of patient understanding of the referral system (Ramadhani, 2020). Suharmiati et al (2019) also explained that in addition to the availability of facilities and infrastructure and minimal human resources, the pattern of health services of health centers and their networks in border areas was not optimal, and the provision of honoraria was considered inappropriate (Suharmiati et al., 2013).

This finding is also true in Lebanon, where doctors are less interested in working in primary healthcare facilities. They prefer to work independently in urban areas. The five main issues that discourage doctors from working in primary healthcare include low conceptual understanding, small scope of work, low recruitment and retention of doctors, challenges in remote and underdeveloped areas, and lack of role of policy makers (Alameddine et al., 2016). The low retention of doctors in primary health care is due to low income. The capitation system used as the basis for payment of medical services does not apply to doctors working in remote areas. In addition, doctors face a difficult working environment and do not receive social security (Bertone et al., 2016; Honda et al., 2019; Mashange et al., 2019).

The researcher's assumption of the low ratio of doctors at public health in Madura, in addition to the quantity issue, is the work pattern, income and health service management system that puts the doctor's dual function of health service provider as well as being in a management position. The many work programs of puskesmas in carrying out their functions in the promotive, preventive and curative fields also influence the interest of doctors to work at puskesmas compared to other first-level health facilities.

B. Relationship of Doctor to Non-Specialty Referral (RNS) Ratio

Referral rate is one of the indicators of the success of the PHC function as a gate keeper. An analysis of the relationship between the referral ratio at primary care facilities and the status of Non-Specialty Referrals (RNS) needs to be carried out to be able to assess the level of success of the gate keeper function, using data on the achievement of Performance-Based Capitation (KBK) at primary care facilities in May 2024.

Table 3. Cross Tabulation of Physician Ratio and RNS Status at Social Security Agency on Health, Pamekasan

Variabel	Doctor Ratio				Total
	Not Ideal		Ideal		
	n	%	n	%	
Non-Specialty Referrals (RNS)					
Unsafe	10	7,04	14	24,13	24
Safe	132	92,96	44	75,87	176
Total	142	100	58	100	200

Based on table 4 above, it can be seen that most of the doctor ratios are not ideal, namely 142 out of 200 PHCs and 95.96% of PHCs with non-ideal doctor ratios are still classified as safe RNS status, namely 132 PHCs. Laksono et al (2020) also explained that the number of puskesmas in Indonesia is positively related to the number of doctors (Laksono et al., 2020). The high number of ratios that are not ideal at the puskesmas will certainly affect the referral screeners (gate keepers), resulting in a high number of non-specialistic referrals. According to Fadila and Purnomo (2021) found that the cause of the high ratio of non-specialistic referrals at four health centers in Pasuruan Regency was the lack of complete and standardized facilities and infrastructure and found that 75% did not have the type and number of health workers including doctors according to Permenkes 43 of 2019 (Fadila & Purnomo, 2021; Peraturan Menteri Kesehatan RI No 43 tahun 2019, 2019).

Table 4. Chi Square Test Analysis of the Doctor Ratio to RNS at Status in Social Security Agency on Health, Pamekasanin June 2024

Variable	Doctor Ratio		p-value	OR	CI 95%
	Not Ideal	Ideal			
Non-Specialistic Referrals (RNS)					
Unsafe	10	14	0.001	2.381	1.099-3574
Safe	132	44			

Source: Chi Square test results, SPSS

Based on the results of statistical tests using the Chi Square Test above and with a significance of 5%, the results show that the p-value (0.001) <0.05, which means that there is a relationship between the ratio of doctors at PHC and the RNS status at BPJS Kesehatan KC Pamekasan. The results of this study are supported by the results of similar research by Semarajana, et al. (2022) which states that one of the factors associated with high RNS at the PHC level in the era of the National Health Insurance (NHI) is health workers and includes doctors (Semarajana, 2022) Semarajana, et al. (2022) explained that health workers, including doctors, include the number of doctors available at PHC and their competence (Semarajana, 2022). Research conducted by Arli, Syamsu, & Makmun (2023) also mentions things that are in line with this study that aspects of human resources include one of them doctors. Doctors are one of the factors that cause high referral rates at first-level health facilities in the NHI Era, both in terms of the quality of doctors and the quantity that is still lacking. The implementation of the health referral system at the first-level health facility level must be balanced with improving the quality of its human resources (Ode Arli et al., 2023).

Different results were shown in previous research, namely by Ruslang and Puspandari (2023), where the results showed that there was no relationship between the ratio of doctors and other health workers, namely nurses, and midwives to the number of referrals issued by the Poso District Health Center (Ruslang & Diah Ayu Puspandari, 2023). However, in the study it was found that Puskesmas in Poso District which had a low doctor ratio (not ideal doctor ratio) issued more referrals with specialty diagnoses. In addition, it was found that there were 586 referrals that were originally diagnosed as specialty diagnoses that were finally included at the hospital level in the category of nonspecialty diagnoses and these RNS should have been handled at the PHC level, namely health center.

Research by Sarina, Amelia, & Hamzah (2023) also describes the results of research that is different from this study, where in the study it was concluded that the availability of health workers at the puskesmas was not a cause of RNS to FKRTL in Polewali Mandar District (Sarina et al., 2021). However, these results may be due to the number or availability of health workers, especially doctors, to provide health services, besides that it is also conveyed that health workers who are the main human resources at PHC, namely the Puskesmas of Polewali Mandar Regency, have proven abilities and competencies. This will certainly greatly affect the quality of health services provided by health workers to the community so that it can reduce the number of referrals to the FKRTL level. The same previous research results were also found by Pertiwi and Basabih (2018) that the Beji Health Center and Depok Jaya Health Center had an optimal RRNS ratio (0%). This is because the provision of referrals by doctors has been adjusted to indications, experienced and skilled and there is a response back to the total RRNS. However, the number of doctors at the health center is insufficient compared to the workload (Pertiwi & Basabih, 2018).

The results in this study explain that there is a significant relationship between the ratio of doctors and RNS. This means that the higher the level of gap or disparity in the ratio of doctors at primary health care facilities, the greater the likelihood that primary health care doctors will refer patients to hospitals with diagnoses that should be able to be handled completely at primary health care facilities. Therefore, the un-ideal ratio of doctors at primary care facilities will certainly interfere with the four main functions of primary care facilities as gate keepers (Ruslang & Diah Ayu Puspandari, 2023). The results of this study explain that there is a significant relationship between the ratio of doctors and RNS. This means that the higher the level of gap or disparity in the ratio of doctors at primary health care facilities, the greater the likelihood that primary health care doctors will refer patients to hospitals with diagnoses that should be able to be handled completely at primary health care facilities. Therefore, the un-ideal ratio of doctors at primary care facilities will certainly interfere with the four main functions of primary care facilities as gate keepers (Ruslang & Diah Ayu Puspandari, 2023).

Conclusion

Based on the results of statistical tests that have been carried out, it can be concluded that there is a significant relationship between the ratio of doctors and Non-Specialistic Referrals (RNS). The results of this study can be a reference for the Regional Government through the relevant agencies to fulfill the ratio of doctors and infrastructure at PHC through the Regional Government Strategic Plan in order to achieve complete and standardized health services.

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